



# Lewis' Woodpecker

*Melanerpes lewis*

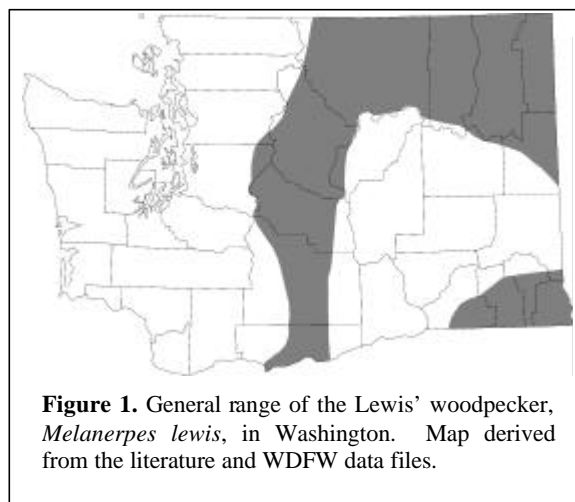
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## GENERAL RANGE AND WASHINGTON DISTRIBUTION

The Lewis' woodpecker breeds from British Columbia and southern Alberta, south to Utah and Colorado, and from South Dakota west to the Cascades. It is either a year-round resident or winters from Oregon south to Baja, California, and east to western Texas and Oklahoma (Tobalske 1997).

Historically, this woodpecker was known to breed throughout the Puget Trough, southwest Washington, and the Olympic Peninsula (Jewett et al. 1953, Jackman 1975, MacRoberts and MacRoberts 1976). Currently in Washington, Lewis' woodpeckers only breed east of the Cascades from the Columbia Gorge north, and east into the Okanogan highlands and northeast Washington (see Figure 1). Their present breeding range also includes the Blue Mountains (Tobalske 1997).



**Figure 1.** General range of the Lewis' woodpecker, *Melanerpes lewis*, in Washington. Map derived from the literature and WDFW data files.

## RATIONALE

The Lewis' woodpecker is a State Candidate species. This species has shown a recent decline in the Western states, possibly due to competition for snags and nest cavities and loss of their historic riparian and ponderosa pine habitat (U.S. Fish and Wildlife Service 1985, Saab and Vierling 2001, Sauer et al. 2001). In Washington, the Lewis' woodpecker is only locally abundant as a breeding bird, and its range has contracted within the last half of this century to include only habitats east of the Cascade crest. This species is vulnerable to the loss of snag habitat, and to habitat loss as a result of fire suppression and brush control (Tobalske 1997, Saab and Vierling 2001).

## HABITAT REQUIREMENTS

The Lewis' woodpecker prefers a forested habitat with an open canopy and a shrubby understory, with snags available for nest sites and hawking perches (Bock 1970). Bock (1970) states that the critical features of Lewis' woodpecker habitat are forest openness, understory composition, and availability of insect fauna. Additionally, optimum habitat for the Lewis' woodpecker has been defined by the following factors (Sousa 1983):

- total tree canopy closure  $\leq 30\%$ ,
- total shrub crown cover  $\geq 50\%$ ,
- crown cover of mast (nut) producing shrubs  $\geq 70\%$ ,
- percent of total tree canopy closure comprised of hard mast trees  $\geq 70\%$ , and
- distance to potential mast storage sites  $\leq 0.8$  km (0.5 mi).

## Breeding

Breeding populations of the Lewis' woodpecker in Washington are locally distributed, often in colonies, and occur frequently in burned forests (Jewett et al. 1953, Raphael and White 1984, Block and Brennan 1987, Tobalske 1997). Riparian areas dominated by cottonwoods (*Populus trichocarpa*), and oak (*Quercus garryana*) woodlands are major breeding habitats, as are open or park-like ponderosa pine (*Pinus ponderosa*) forests (Sousa 1983, Saab and Vierling 2001). Burned stands of Douglas-fir (*Pseudotsuga menziesii*) and mixed conifers are also used by this woodpecker as breeding habitat (Bock 1970, Raphael and White 1984). Openness is the characteristic common to all breeding habitats, and is related to this woodpecker's foraging methods of hawking and gleaning in brush (Bock 1970). Brushy undergrowth that supports insects on which Lewis' woodpeckers feed is an important component of their preferred breeding habitat (Tobalske 1997). In eastern Washington, undergrowth consisting of species such as sagebrush (*Artemisia* spp.), golden currant (*Ribes aureum*), bitterbrush (*Purshia tridentata*) and rabbitbrush (*Chrysothamnus* spp.) is typically present where this woodpecker breeds.

Lewis' woodpeckers will also use selectively logged or burned coniferous forests that are structurally similar to open ponderosa pine (Raphael and White 1984). In the normal cycle of reforestation, a burn may become suitable habitat for Lewis' woodpeckers between the 10th and 30th year of regeneration, when a shrub understory develops and insects are prevalent (Bock 1970, Jackman and Scott 1975). However, Saab and Dudley (1995) found Lewis' woodpeckers using a ponderosa pine stand two years after it burned. They reported Lewis' woodpeckers displacing hairy woodpeckers and western bluebirds from nest cavities that had been excavated in snags before the fire. This behavior had not been reported before in this species. Lewis' woodpecker nesting sites within salvaged stands of burned forests had an average of 59 snags/ha (24/ac)  $>23$  cm (9 in) diameter at breast height (dbh) and 16 snags/ha (16.5/ac)  $>51$  cm (20 in) dbh (Saab and Dudley 1997).

Riparian areas are also used as breeding habitat for Lewis' woodpeckers. Groves of cottonwood trees are especially suitable because they are open and usually have dead trees that offer nest and roost sites. Insects are abundant due to the lush vegetation within riparian areas (Bock 1970, Jackman and Scott 1975).

Lewis' woodpeckers have high nest site fidelity and often use the same cavity in consecutive years (Bock 1970). This woodpecker will excavate its own nest cavity, but it also uses natural cavities or holes excavated by other woodpeckers. Being a weak excavator, the Lewis' woodpecker prefers soft snags to live trees (Raphael and White 1984). Nest snags and trees in the Sierra Nevada averaged 11.4 m (37 ft) in height and 66.5 cm (26 in) dbh; mean nest height was 7.3 m (24 ft), and the mean diameter at nest-height was 52 cm (20 in) (Raphael and White 1984).

## Feeding

The Lewis' woodpecker is an opportunistic feeder that breeds where insects are locally abundant, and it winters where hard nut producing trees are readily available (Bock 1970). Their diet during the spring and summer consists primarily of insects including ants, bees and wasps, beetles, grasshoppers and true bugs (Tobalske 1997). Fruits and berries were the most frequently eaten foods in late summer and fall, whereas winter foods consisted of acorns, commercial nuts, and corn. The feeding behavior of Lewis' woodpeckers is atypical among woodpeckers. Bock (1970) found that in summer they spent approximately 60% of their foraging time capturing insects in flight, 30% ground/brush foraging, and 10% gleaning insects from trees. Raphael and White (1984) reported that of Lewis' woodpeckers' foraging time, 76% was spent capturing insects in flight, 22% gleaning, and 2% drilling. During winter, Lewis' woodpeckers feed mostly on cached acorns and insects, and they spend some time flycatching and gleaning insects (Bock 1970). Although these woodpeckers protect only their immediate nest site during the breeding season, they defend a feeding area in winter (Bock 1970).

## LIMITING FACTORS

The availability of snags, nest holes excavated by other woodpeckers, and abundant prey populations are the predominant factors that limit distribution and abundance of the Lewis' woodpecker (Jackman 1975). The selection of one specific area by this woodpecker probably depends on insect abundance. Certain timber management practices and heavy livestock grazing can impact an area's suitability for Lewis' woodpeckers (Jackman 1975, Jackman and Scott 1975). Fire suppression also has likely impacts on the availability of suitable habitat for this species (Saab and Dudley 1997, Tobalske 1997).

Certain habitats are only temporarily suitable, such as logged or burned forests prior to regeneration of second-growth stands. However, post-burn forests likely provide suitable habitat for longer periods within the dryer portions of Lewis' woodpecker range (e.g., eastern fringe of the Cascades) as a result of slower regrowth. Logged or burned coniferous forest is an important part of Lewis woodpecker habitat, but it is generally only suitable in the shrub stage. Unfortunately the brushy stage is undesirable for timber management, and efforts are made to eliminate it. Management practices that remove snags and damaged or diseased trees also limit the availability of nest sites. Additionally, livestock grazing can destroy native understory vegetation, which decreases insect abundance (Jackman and Scott 1975).

Frequent human disturbance at nest sites can also have a negative effect on this species. Lewis' woodpeckers become agitated by continued disturbance at the nest site and will occasionally desert their nest (Bock 1970).

## MANAGEMENT RECOMMENDATIONS

In areas where the Lewis' woodpecker occurs, as many standing dead, insect infested, and damaged trees should be retained as possible during thinning and cutting operations (Jackman 1975, Saab and Dudley 1997). Large, soft snags that are suitable for Lewis' woodpecker nest sites are particularly valuable. In managed forests, retaining clusters of trees benefits this species over the retention of uniformly distributed trees for partially logged or salvaged units (Saab and Dudley 1997).

When replanting after a timber harvest, attempts should be made to duplicate natural tree species composition, rather than replanting with a single species (Jackman 1975). Sections of logged or burned forest should be left to regenerate naturally to brush (Jackman and Scott 1975). The brushy forest stage is important for maintaining a healthy insect populations and should not be suppressed (Jackman 1975).

Green forests that are either maintained for timber harvest or have a high risks of a stand-replacement fire should be managed in a way that snag numbers will replenish themselves over time (particularly by retaining broken-topped trees). This management practice will contribute to the continuous availability of easily excavated post-fire nesting trees. In burned forests, retain as many large (>50 cm (20 in) dbh) snags as possible (Saab and Dudley 1997).

Woodpeckers and other insectivores play an important role in naturally reducing insect populations. Management to increase woodpecker populations will likely have the secondary benefit of increasing other insectivorous birds (Takekawa et al. 1982). If pesticides or herbicide use is planned in areas inhabited by this species, refer to Appendix A which lists contacts useful when assessing pesticides, herbicides and their alternatives.

Livestock grazing should be limited where the Lewis' woodpecker occurs, so that native understory vegetation is not destroyed. However, more research is necessary to determine the specific threshold limits on grazing pressure to protect habitat for species. A brushy understory is necessary to provide an adequate insect prey base (Jackman 1975, Jackman and Scott 1975).

Frequent or prolonged human disturbance at nest sites of Lewis' woodpeckers should be avoided. Adult woodpeckers become agitated by continual disturbance at the nest site, and may desert the nest (Bock 1970).

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## KEY POINTS

### Habitat Requirements

- Critical features of Lewis' woodpecker include forested habitat with an open canopy, a shrubby understory composition, insect fauna and snags available for nest sites and hawking perches.
- Optimum habitat for the Lewis' woodpecker has been defined by the following factors:
  - total tree canopy closure  $\leq 30\%$ ,
  - shrub crown cover  $\geq 50\%$ ,
  - crown cover of mast (nut) producing shrubs  $\geq 70\%$ ,
  - percent of total tree canopy closure comprised of hard mast trees  $\geq 70\%$ , and
  - distance to potential mast storage sites  $\leq 0.8$  km (0.5 mi).
- Mainly inhabits riparian stands dominated with cottonwoods, oak woodlands, and park-like ponderosa pine forests with brushy understory. They also use Douglas-fir, and mixed-conifer forests, and logged or burned areas up to 30 years old.
- Excavates cavities or uses available nest holes in snags.
- Feeds mainly on insects and hard nut crops and uses perches to scan for and catch insects in flight.

### Management Recommendations

- Retain as many standing dead, insect infested, and damaged trees as possible during thinning and cutting operations. Large, soft snags are particularly valuable. In managed forests, retaining clusters of trees benefits this species over the retention of uniformly distributed trees for partially logged or salvaged units.
- Duplicate natural tree species composition when replanting after a timber harvest rather than replanting stands with a single species of tree. Sections of logged or burned forest should be left to regenerate naturally to brush. A brushy successional stage is important for healthy insect populations and should not be suppressed.
- Manage green forests that are either maintained for timber harvest or have a high risk of a stand-replacement fire in a way that snag numbers will replenish themselves over time (particularly by retaining broken-topped trees). This management practice will contribute to the continuous availability of easily excavated post-fire nesting trees. In burned forests, retain as many large ( $>50$  cm (20 in) dbh) snags as possible.
- Refer to Appendix A that lists useful contacts for evaluating pesticides, herbicides and other alternatives if pesticide use is planned in areas where this woodpecker occurs.
- Limit livestock grazing where the Lewis' woodpecker occurs, so that native understory vegetation is not destroyed.
- Avoid frequent or prolonged human disturbance at nest sites of Lewis' woodpeckers.